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J. Helminthol. Soc. Wash.
66(1), 1999 pp. 86–89

Research Note

Distribution and Prevalence of *Alloglossoides caridicola* (Trematoda: Macroderoididae), a Parasite of the Crayfish *Procambarus acutus* Within the State of Louisiana, U.S.A., and into Adjoining States

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ABSTRACT: A survey of 765 crayfish conducted during April and May 1998 indicated that *Alloglossoides caridicola* infected the antennal glands of *Procambarus acutus* from a variety of habitats within Louisiana, north of the coastal marsh region. Infections were absent from crayfish collected in the prairie region of southwestern Louisiana but extended into eastern Texas, southern Arkansas, and southwestern Mississippi. Prevalence of infection was 0% at 22 localities but ranged from 5.6% to 100% at 23 localities.

KEY WORDS: Trematoda, Macroderoididae, *Alloglossoides caridicola*, distribution, prevalence, crayfish, *Procambarus acutus*, Louisiana, Texas, Arkansas, Mississippi.

Alloglossoides caridicola was described by Corkum and Turner (1977) from the antennal glands of crayfish, *Procambarus acutus* (Girard, 1852), collected near Rosedale, Louisiana. Although its life cycle is unknown, *A. caridicola*

is unusual in that it attains sexual maturity and reproduces in an invertebrate. No other hosts have been reported for the worm, nor has it been reported from other localities.

In April and May 1998, I undertook a survey of the distribution and prevalence of *A. caridicola* within Louisiana and the contiguous border areas of adjoining states (eastern Texas, southern Arkansas, and southwestern Mississippi, U.S.A.). Crayfish were taken by dip net from 45 localities (Table 1) representing a variety of aquatic habitats and were identified according to descriptions in Hobbs (1972, 1981). Paired antennal glands of 668 *P. acutus* and 97 *P. clarkii* (Girard, 1852) were removed, dissected under a stereomicroscope, and examined for presence of worms. Representative voucher specimens of *A. caridicola* from 23 localities were fixed in hot alcohol-formalin-acetic acid, stained in Semi-

Table 1. Prevalence of *Alloglossoides caridicola* infection in *Procambarus acutus* from localities in Louisiana, Texas, Arkansas, and Mississippi, U.S.A.

Collection site	Collection date	% Prevalence	USNPC No.
Louisiana:			
Roadside ditch 3.2 km N of Crowley	7 Apr	0/18 (0)	—
Roadside ditch 6.9 km ENE of Eunice	7 Apr	0/15 (0)	—
Roadside ditch 3.7 km NE of Ville Platte	7 Apr	0/5 (0)	—
Stream crossing highway I-49 near 44-mi marker	7 Apr	0/16 (0)	—
Roadside ditch 21.7 km NW of Bunkie	7 Apr	0/3 (0)	—
Roadside ditch 10.6 km SW of Jonesville	7 Apr	0/12 (0)	—
Roadside ditch 13.2 km ESE of Jonesville	7 Apr	9/14 (64.3)	88116
Roadside ditch 9.2 km W of Franklin	8 Apr	0/17 (0)	—
Roadside ditch 5.8 km W of Amite	8 Apr	1/12 (8.3)	88117
Roadside ditch 19 km WNW of Montpelier	8 Apr	0/16 (0)	—
Roadside ditch 13.5 km E of Opelousas	8 Apr	1/16 (6.3)	88118
Roadside ditch 5.3 km W of Opelousas	8 Apr	0/10 (0)	—
Roadside ditch 11.9 km SSW of Lawtell	8 Apr	0/7 (0)	—
Crayfish pond 7 km S of Henderson	13 Apr	0/27 (0)	—
Roadside swamp 13.5 km NW of DeQuincy	24 Apr	3/13 (23.1)	88119
Roadside ditch 4.8 km NNE of Bancroft	24 Apr	2/5 (40)	88120
Roadside swamp 3.9 km N of Merryville	24 Apr	4/5 (80)	88121
Roadside stream 13.8 km NNW of Kitsatchie	24 Apr	21/25 (84)	88122
Roadside swamp 3.8 km WSW of Starks	25 Apr	0/25 (0)	—
Roadside swamp 3.9 km NE of New Roads	2 May	15/29 (51.7)	88123
Roadside ditch 5.1 km S of Varnado	2 May	0/9 (0)	—
Roadside swamp 5.8 km S of Converse	18 May	21/29 (72.4)	88124
Roadside ditch 3.5 km SW of Edgeland	18 May	12/15 (80)	88125
Roadside swamp 3.7 km ENE of Summerfield	18 May	0/28 (0)	—
Roadside ditch 0.8 km S of Monroe	19 May	1/1 (100)	88126
Roadside ditch 0.1 km S of Eros	19 May	3/9 (33.3)	88127
Roadside swamp 12.2 km SE of Montgomery	19 May	6/25 (24)	88128
Roadside swamp 9.6 km SSE of Colfax	19 May	4/6 (66.6)	88129
Roadside ditch 2.8 km S of Hinston	19 May	1/2 (50)	88130
Roadside ditch 19.6 km SSW of Oakdale	19 May	0/6 (0)	—
Roadside ditch 3 km ENE Rosedale	27 May	22/34 (64.7)	88131
Texas:			
Roadside swamp 4.8 km W of Milam	25 Apr	18/18 (100)	88132
White Oak Creek 13.7 km SSW of Newton	25 Apr	1/14 (7.1)	88133
Roadside ditch 49 km S Newton	25 Apr	0/8 (0)	—
Arkansas:			
Roadside swamp 12.8 km SW of Calion	18 May	0/26 (0)	—
Roadside ditch 14.6 km NNE of Calion	18 May	1/18 (5.6)	88134
Roadside ditch 3.4 km W of Warren	18 May	18/25 (72)	88135
Roadside ditch 13 km ESE of Hamburg	18 May	5/9 (55.6)	88136
Mississippi:			
Roadside ditch 14.9 km SSW of Lumberton	8 Apr	0/7 (0)	—
Roadside ditch 8.9 km SW of Poplarville	8 Apr	0/21 (0)	—
Stream crossing road 12.5 km W of Woodville	2 May	0/22 (0)	—
Roadside swamp 9.3 km WNW of Liberty	2 May	0/11 (0)	—
East Fork of Amite River 10.8 km SE of Liberty	2 May	4/13 (30.8)	88137
Roadside ditch 12.2 km WSW of Magnolia	2 May	1/12 (8.3)	88138
Roadside ditch 0.8 km SSW of Sandy Hook	2 May	0/10 (0)	—

chon's acetocarmine, and mounted in Permount® for deposit in the United States National Parasite Collection (USNPC), Beltsville, Maryland.

According to Penn (1959), *P. acutus* was

ubiquitous in habitat and had the widest distribution of any crayfish species in Louisiana. Only *P. clarkii* rivaled that record, having been reported from slightly fewer parishes. Penn (1959)

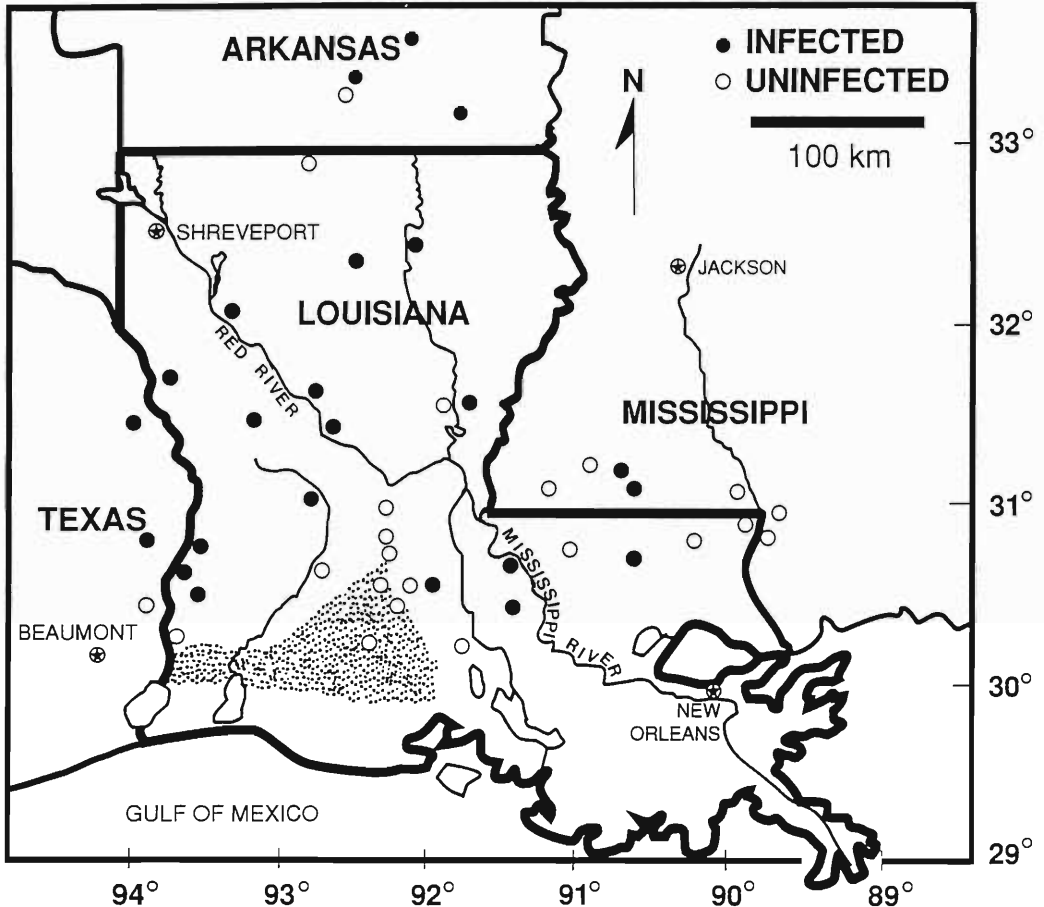


Figure 1. Map of Louisiana, eastern Texas, southern Arkansas, and southwestern Mississippi showing distribution of uninfected *Procambarus acutus* as well as those infected with *Alloglossoides caridicola*. Stippled area indicates the prairie vegetation region of southwestern Louisiana.

noted a few scattered locations (map points) for *P. acutus* in the marsh vegetation region, which lies mostly south of 30°N latitude (Fig. 1). After extensive collecting in that region, I have been unable to obtain *P. acutus*; however, *P. clarkii* was abundant and presumably displaces *P. acutus* in the marsh.

Procambarus acutus was collected from all of Louisiana's other major vegetation regions, as recognized by Brown (1972). Within these regions, infected *P. acutus* occurred in all type habitats sampled (Table 1), except a commercial crayfish pond near Henderson, Louisiana. This pond had been a swamp prior to aquaculture and also supported a population of *P. clarkii*. While both species were sympatric at 13 other Loui-

siana localities, only *P. acutus* harbored *A. caridicola*.

Distribution of *A. caridicola* was not as widespread as that of its crayfish host. Results of examination of crayfish from the prairie vegetation region (Fig. 1) proved unexpected, in that none of 40 *P. acutus* from 3 localities (Crowley, Eunice, and Lawtell) exhibited infection. Furthermore, no infections were noted in 40 crayfish from 3 localities (Starks, Ville Platte, and west of Opelousas) closely bordering the prairie.

Infection with *A. caridicola* extended beyond Louisiana and into eastern Texas, southern Arkansas, and southwestern Mississippi (Fig. 1). In these adjoining states, as in Louisiana, swamps, ditches, streams, creeks, and rivers evidently

provided suitable habitats for completion of the parasite's life cycle.

Prevalence of infection was 0% at 22 localities, but it ranged from 5.6% to 100% at 23 localities (Table 1). Significant among high prevalence localities was a roadside swamp near Milam, Texas, where all of 18 crayfish were infected. Because worms are long, slender, and fragile, they are difficult to remove intact. Therefore, no attempt was made to determine intensity of infection. However, the Milam crayfish had relatively higher estimated intensities (≥ 10 worms per antennal gland) than those from lower prevalence localities, where estimated worm burdens usually ranged from 1 to 5 per infected gland.

Hobbs and Hobbs (1990) believed *P. acutus* to be a species complex and that over its range, certain populations, previously identified as *P. acutus*, were in fact new species. One such species was *P. zonangulus*, which was described from specimens collected in Hardin, Jefferson, and Orange counties in southeastern Texas (Hobbs and Hobbs, 1990). Although none of my collecting sites were within those 3 counties, *P. zonangulus* was not collected from sites in Newton County, Texas, nor from Calcasieu Parish, Louisiana, both of which border the region where *P. zonangulus* reportedly occurs.

In light of the apparent host specificity exhibited by *A. caridicola*, further research is warranted to determine whether *P. zonangulus* harbors this infection.

This research was supported by the Jack V. Doland Endowed Professorship awarded to the author.

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J. Helminthol. Soc. Wash.
66(1), 1999 pp. 89–92

Research Note

Nematodes of Two Skinks, *Ctenotus leonhardii* and *Ctenotus quattuordecimlineatus* (Sauria: Scincidae), from Western Australia

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ABSTRACT: Thirty-one *Ctenotus leonhardii* and 30 *C. quattuordecimlineatus* from Western Australia were examined for helminths. *Ctenotus leonhardii* harbored the nematodes *Maxvachonia chabaudi* and *Abbreviata* sp. (larvae), and *C. quattuordecimlineatus* harbored the nematodes *M. chabaudi*, *Parapharyngodon kar-*

tana, *Physalopteroides filicauda*, *Wanaristrongylus ctenoti*, and *Abbreviata* sp. (larvae). Highest prevalence (30%) was recorded for *Abbreviata* sp. in *C. quattuordecimlineatus*, and greatest mean intensity (3.5) was recorded for *Abbreviata* sp. in *C. leonhardii*. *Ctenotus leonhardii* represents a new host record for *M. chabaudi* and *Abbreviata* sp. *Ctenotus quattuordecimlineatus* represents a new host record for *M. chabaudi* and *P. kartana*.

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